



**W2NPT**

# ***The Resonator***

**Volume 2, Number 11**

**www.FairLawnARC.org**

**November 2017**

**The Official Newsletter of The Fair Lawn (NJ) Amateur Radio Club**

## **From The President:**

To the Members of FLARC, New Members and Guests,

Thanks to all that participated in the Fair Lawn Street Fair on Sunday, October 15th. There was so much activity with people at the fair, our volunteer members and of course Capt. Larry. He was the center of attraction for many kids and adults too.

Then there was an evening with Ria Jaiaram, N2RJ. She is certainly a woman of the ham radio world whose experience is amazing. Her presentation touched upon many aspects of amateur ham radio and contacts around the world. May she continue in her endeavors to make radio a better place for all of us.

Stay tuned for November and December for they are busy months too. In November we have Jonathan Taylor, K1RFD/VOIP Developments on Friday, November 17th at the Senior Center and our club's "famous auction" on Friday, November 24th also at the Senior Center.

December 1st - is our annual Holiday Party for members, their families and invited guests. Many of you know it takes many people to make this happen. If you can make a "favorite family recipe" dish it is always welcomed.

December 15th – Mike Lisenco, N2YBB will be our guest speaker at the Senior Center. Hoping all members can be there for Mike is the ARRL Hudson Division President.

Thanks!  
Judith KC2LTM/President

## **Member Profile**

NAME: **Fred Belghaus** CALL: **W2AAB**

On a cloudy day in 1954, a seven year old wandered into his uncle's "Electronics Workshop" on Crescent Street in Astoria, Queens. His uncle wasn't a ham, at least not yet, but he worked as a technician for one of the big aerospace companies on Long Island, and he had a profound knowledge of electronics. The seven year old discovered, on an old oak desk, a Hallicrafters S-20R "Sky Champion" receiver. Somehow, he figured out how to operate this mysterious piece of electronic equipment, tuning the shortwave bands, and hearing a lot of strange sounding signals, foreign accents, and some people speaking back and forth. The people speaking back and forth used an odd lingo, which included such terms as "CQ," "QRM," "QTH," and "QSL."

The seven year old asked his uncle what all that was about, and was told that they were ham operators—people who had licenses to communicate with their own private transmitting stations. The seven year old was amazed. "How do you get to be one?" he asked. His uncle handed him a thick book called, The Radio Amateur's Handbook, 1947 edition. The seven year old was hooked, and couldn't take his nose out of that book all the way home, on the subway, and the bus back to his home in New Jersey.

Three years later, he pestered his father to buy a "short wave set," but most of them were too expensive, so he ended up with a \$19.95 kit from Allied Radio. It was a Knight Kit "Ocean Hopper," a regenerative shortwave receiver with 3 tubes and plug in coils. Not quite eleven years old, the youngster built it and, to his amazement, it worked the first time.

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## Member Profile (Continued)

What a world was opened to him then! After five years of shortwave listening, when he turned fourteen, the kid became WN2CST. The ham who administered his Novice exam was Chuck Busch, who lived on Saddle River Road and who signed the call WA2OVK in those days (now he's N5PJE). In case you're wondering who that unnamed kid was—it was me.

Thus began a lifelong fascination with ham radio that has only intensified since. My Novice days were uneventful, but I had a passion for 2 meter phone, and a fear of CW. One of my other uncles, a long-time ham, encouraged me to get on Charlie Whiskey, which I did, only to find myself truly hooked. I operated mainly on 80 and 40 CW. In June, 1963, one of my QSO's was with K2YCB/2, which was the call of Carl Van Riper. The call was being used by FLARC while operating on Field Day at Blasberg's Fruit Farm in Hawthorne. After discovering the gentle music that CW is, I've hardly picked up a microphone since, usually only to score a point in a contest or work a new DX entity.

I joined FLARC sometime in 1963, and remained an active member until beginning my college years in 1965. I was Secretary of FLARC in 1964, and President in 1965. I attended Fair Lawn High School, and was a member of the school Radio Club (formerly WA2KMH), serving as Secretary in my Junior and Senior years. I later joined BARA, and in the early 1970s, operated on Field Days with the Englewood Amateur Radio Association, under the call W2RJ/2.

Over the years, I've been active in CW traffic nets, holding the Official Relay Station and Official Phone Station appointments, later adding Emergency Coordinator, Official Observer, and Route Manager when I became manager of the New Jersey Net on CW. I had traffic assignments to 2RN (Second Region Net, send and receive), EAN (Eastern Area Net, send and receive), as well as some sending schedules on TCC (Transcontinental Corps).

At Fairleigh Dickinson University, I was co-founder and Secretary of the re-established FDU Amateur Radio Club (our call was WB2VVA in those days), also serving as Chief Announcer and Newsmen at the campus radio station, WFDU. I was also a member of the committee that worked on obtaining the station's FM broadcast license.

## Member Profile (Continued)

While in college, ham radio took a bit of a back seat, but I still found time to operate in every major contest, HF and VHF, and build both a RTTY demodulator and one of the earliest SSTV stations, with the guidance of another ham radio mentor, Lew, W2PMV.

I've belonged to Air Force MARS, Navy-Marine Corps. MARS, and Fair Lawn Civil Defense RACES. I joined the FOC (First Class CW Operators Club) in the late 1970's, later resigning in the mid-'80s due to work and family commitments. Presently, I am a Life Member of the Quarter Century Wireless Association (QCWA), member of the Antique Wireless Association (AWA), and the CW Operators Club (CWO).

In 1969, I did some early work with 2 meter repeaters, and served as one of the control operators of the 146.19/.79 repeater, originally located in Ridgewood, before it moved to Paramus and acquired its present call, W2AKR.

One of my interests has been building and restoring vintage amateur radio equipment. I have built a slew of low power transmitters, receivers, and ATUs, and enjoy working with vintage circuits. I have restored several types of old time ham gear, but can no longer lift the heavy pieces. Nearly all my HF antennas and several of my VHF/UHF antennas over the years have been homemade.

My main interests now in ham radio are DX and contesting. Another interest is ham radio history, and I have compiled a large library of early ham literature and antique QSL cards, as well as a small collection of telegraph keys and instruments, some dating back to the mid 19<sup>th</sup> Century.

Professionally, I have worked as a broadcast engineer, teacher, announcer, broadcast journalist and News Director, sales engineer for an electronics manufacturer, Sales Manager, and I have held additional sales positions in the electronics and machine tool industries.

Continued on page 3.

## Member Profile (Continued)

Presently retired, my last position was as Contract Administrator for a large multinational company specializing in the sale of mil-spec aerospace parts to the U.S. Government. Recently, I have been working as a freelance writer and editor for an internet business.

I would like to see FLARC establish a code practice class for those interested in learning the second language of Morse, and for those who wish to improve their CW proficiency.

Oh, by the way, that uncle who first inspired seven year old me, finally became a licensed Advanced Class amateur at the age of 70. His call was N2TSK. Though he is now a Silent Key, I will always remember and thank him for his inspiration and encouragement, in starting me on this fascinating journey in the world of amateur radio. I also wish to acknowledge the many contributions made by another ham uncle, W2VQD (also a Silent Key) for teaching me to put down that microphone and take up a key, instead. I've never regretted his sound advice. After fifty five years on the air, I still love to keep those dits and dahs rolling off my fingers!



Fred (W2AAB) then WN2CST / Christmas 1962

## November 2017 Meeting Notes

President Judith KC2LTM called the meeting to order at 7:30p.m. The members rose and recited the Pledge of Allegiance.

President Judith KC2LTM asked Secretary Randy WU2S to call the roll of officers and trustees. All were present, except Treasurer Nancy N2FWI, so the club had a quorum to conduct business.

President Judith KC2LTM asked if there were any visitors or new members present, or if any members had upgraded their licenses. Visitor John (no callsign) announced his presence and new member Steve (no callsign) introduced himself.

Secretary Randy WU2S announced that the minutes from the October meeting were emailed to all members and that they had also been published on the club's website at [www.fairlawnarc.org](http://www.fairlawnarc.org). He asked the members present if there were any corrections or amendments needed. There were none so Skip KD2BRV moved to accept the minutes as published and Brian KD2KLN seconded the motion. The motion passed by acclamation.

President Judith KC2LTM said that she had not received a treasurer's report. She noted that annual dues collection for 2018 has begun and that members can give their payments to her.

President Judith KC2LTM announced that Fran, the wife of member John KC2OCD, recently passed away. The club offered its condolences for John's loss.

Secretary Randy WU2S reported for the Technical Committee. He reported our recent guest lecturer Nathaniel Frissell, W2NAF, is organizing a workshop for hams and other interested citizen scientists in February. The announcement from his website at <http://hamsci.org> announces the event. "We are inviting all hams and scientists interested in ham radio science to come to the New Jersey Institute of Technology in Newark, NJ for a HamSCI workshop on Friday, February 23 and Saturday, February 24, 2018.

Continued on page 4.

## November 2017 Meeting Notes (2)

The aim of this workshop is to foster collaborations between the ham radio and the space science and space weather research communities through presentations, discussions, and demonstrations. This year's meeting will focus on solar eclipse analysis, ham radio data sources and databases, and the development of a "personal space weather station". This meeting is open to all interested persons. If you are interested in attending, please fill out the HamSCI Workshop Interest Survey. Final registration details will be posted by December 2017."

Ed WX2R reported for the Publicity Committee. He announced the coming scheduled events:

- On November 17 guest speaker Jonathan Taylor K1RFD, the inventor of Echolink, will tell us about voice-over-IP (VoIP) telephony for amateur radio.
- On December 15, our ARRL Hudson Division Director Mike Lisenco N2YBB will talk to us about League activities.
- On January 19, 2018, Pete Malvasi W2PM will give a presentation on antique telegraph keys.
- On February 16, 2018 Ed WX2R will review the results of our annual FLARC member survey.
- On March 16, 2018, we plan to have Nathaniel Frissell, W2NAF return and tell us about the results from his solar eclipse radio propagation research which was conducted in August.
- We are planning a FLARC Special Event station at the national park at Paterson Great Falls on Friday, April 13, 2018. We are working with the Paterson school district to introduce students to ham radio.
- We are planning a club trip to the ARRL headquarters in Newington, Connecticut for some time in 2018. No date has yet been selected.
- Pete W2PM offered to organize a group trip and tour of the Bell Labs in Murray Hill for some time in 2018. No date has yet been selected.

President Judith KC2LTM recognized Trustee Dave NK2Q who announced that he had just received a Treasurer's Report via email from Nancy N2FWI. President Judith KC2LTM asked him to read the report. John KD2NRS moved that the report be accepted as read and Gene WO2W seconded the motion. The motion passed by acclamation.

## November 2017 Meeting Notes (3)

President Judith KC2LTM said that the go-kit radio is non-operational and that we need a replacement. Gene WO2W pointed out that there is a suitable Icom 2100 in the cabinet. He said that we need only a single-band two-meter radio for BC RACES operations. Fred W2ABE said that he will salvage any useable parts from the older rig.

Vice President Fred W2ABE reported for the Education Committee. He said that his next column in the Resonator, Theoretics Demystified, will be about the operation of superheterodyne receivers and how they work.

President Judith KC2LTM asked if there was any old business and there was none.

President Judith KC2LTM began to address new business. She said that we need help to organize the club's annual auction on November 24, the day after Thanksgiving. She recognized Gene WO2W who reported the status of our plans. Gene described the list of needs, especially food items needed for both the Auction and the annual Holiday Party on December 1. Both events will be held at the Fair Lawn Senior Center. Gene said that the Auction setup will begin at 4:30 pm so that we are ready for sellers when we open the doors to them at 5:30 pm. Gene confirmed that we have the seller sign-in sheets and bidders auction paddles prepared for the event. He said that this year we will arrange the room differently – using the main kitchen for food and drinks. The sign-in and payment area will be located near where we sold refreshments last year. Randy WU2S and Fred W2ABE will test the public-address systems prior to the Auction.

President Judith KC2LTM reminded everyone that there are three events in a row that will use the Fair Lawn Senior Center as the venue. These are the K1RFD presentation on November 17, the Auction on November 24 and the Holiday Party on December 1.

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## November 2017 Meeting Notes (4)

President Judith KC2LTM announced that members should bring a dessert to share at the Holiday Party. She reminded all that this event is open to all members in good standing and their immediate families at no charge. The Holiday Party is also the last business meeting of the year and includes the election and installation of next year's club officers and trustees.

President Judith KC2LTM requested that the Nominating Committee report on the proposed slate of candidates for next year's officers and open trustee positions. Trustee Jim W2JC reported that the committee had selected the following slate:

- **One-year Trustee**  
to fill Dave NK2Q's unexpired term – Don N2PRT
- **Three-year Trustee** – Skip KD2BRV
- **Treasurer** – AL WA2OWL
- **Secretary** – Randy WU2S
- **Vice-President** – Van W2DLT
- **President** – Brad KD2GNY

President Judith KC2LTM thanked the committee for their work and asked if there were any nominations from the floor.

Hearing no further nominations, Ed WX2R moved that nominations be closed and John KD2NRS seconded the motion. The members present passed the motion by acclamation.

President Judith KC2LTM asked if there was additional new business. Steve WA2BYX asked about the surplus equipment near operating position #1. Randy WU2S said that the antenna parts were determined to be unusable by the club and would be disposed. Gene WO2W said that he would test the audio equipment and if it is working, would sell it for the club.

Ed WX2R asked about a planning session for the Field Day 2018 event. Steve WA2BYX said that if we could get a suitable meeting room for next Friday, November 10, he would organize the session. Gene WO2W said that the Teen Lounge would be available for a 7:00 pm meeting and that he would confirm it.

## November 2017 Meeting Notes (5)

John KD2NRS announced that a contest team representing FLARC had a lot of success operating the contest station K2AX in Hammonton, NJ during the recent CQ Worldwide SSB contest last weekend. The team consisted of John, Van W2DLT, Ed WX2R, Nomar NP4H, and Jim W2JC. Ed and Van noted that a wonderful time was had by all. They left Fair Lawn on Friday morning and returned Sunday evening.

Karl W2KBF said that a recent NCIS television show had presented amateur radio in a somewhat bad light and wondered if anyone else had seen the episode. He noted that incidents like this underscore the value to ham radio of activities that the Publicity Committee organize, such as the presentation and street fair participation. These events show us in a more positive light and contributing valuable public service.

Van W2DLT announced that the ARRL CW Sweepstakes contest is this weekend.

President Judith KC2LTM asked if members were regularly reading the Resonator, the club's newsletter. Most members present agreed that they do. She thanked publisher Ed WX2R for the excellent job he is doing, and the members present applauded. Ed WX2R noted that he doesn't do the newsletter alone. There is a considerable effort by lots of contributors and Ed thanked them all.

Dave NK2Q reported that our ARRL Northern New Jersey Section Manager, Rob KA2PBT relays all of FLARC's announcements and has been actively promoting our events.

Having no further business, President Judith KC2LTM asked for a motion to adjourn. Gene WO2W so moved and Al WA2OWL seconded the motion. The members present voted in favor and the meeting was adjourned at 8:07p.m.

Respectfully submitted,

Randy WU2S, Secretary

## November 2017 Business Meeting

A number of members commented on the size of the attendance at the November business meeting and the number of new faces. An involved membership reflects a healthy club and the turnout reflects our growth over the last three years.



A full house on November 3rd.



Meeting in session.



"Back benchers" and the rest of the club.

## Photos From Around The Club

Here are some pictures taken by Don (N2PRT) at the October 27th club session. Thanks Don!



Tony (N2SIQ)



Gene (W02W)



Gordon (W2TTT) and Brian (KD2KLN) at the test bench.

**Watch For The FLARC Member Survey In January  
Fill It Out!!**

## The Club

Fair Lawn ARC is the fastest growing ham club around, with five operating positions in a permanent clubhouse. Visitors and guests are always welcome. The club is open every Friday night from NLT 6:30 PM. Business meetings are the first Friday of the month at 7:30PM.

### 2017 Officers and Committees

<b>President</b>	<b>Judith Shaw</b>	<b>KC2LTM</b>
<b>Vice President</b>	<b>Fred Wawra</b>	<b>W2ABE</b>
<b>Treasurer</b>	<b>Nancy Beattie</b>	<b>N2FWI</b>
<b>Secretary</b>	<b>Randy Smith</b>	<b>WU2S</b>
<b>Trustee</b>	<b>J Cooper</b>	<b>W2JC</b>
<b>Trustee</b>	<b>Dave Marotti</b>	<b>NK2Q</b>
<b>Trustee</b>	<b>Steve Wraga</b>	<b>WA2BYX</b>
<b>Field Day</b>	<b>Steve Wraga</b>	<b>WA2BYX</b>
<b>Health and Welfare</b>	<b>Al Rasmussen</b>	<b>WA2OWL</b>
<b>Speakers</b>	<b>Lowell Vant Slot</b>	<b>W2DLT</b>
<b>Publicity</b>	<b>Ed Efchak</b>	<b>WX2R</b>
<b>Publicity</b>	<b>Gene Ottenheimer</b>	<b>WO2W</b>
<b>Publicity</b>	<b>Susan Frank</b>	<b>W6SKT</b>
<b>Program</b>	<b>Lowell Vant Slot</b>	<b>W2DLT</b>
<b>Publicity</b>	<b>Al Rasmussen</b>	<b>WA2OWL</b>
<b>Publicity</b>	<b>Karl Frank</b>	<b>W2KBF</b>
<b>Publicity</b>	<b>Judith Shaw (ex officio)</b>	<b>KC2LTM</b>
<b>Social Media</b>	<b>Dave Marotti</b>	<b>NK2Q</b>
<b>Video/YouTube</b>	<b>Thom Guida</b>	<b>W2NZ</b>
<b>VE Liaison</b>	<b>Gene Ottenheimer</b>	<b>WO2W</b>
<b>VE Liaison</b>	<b>Pete Senesi</b>	<b>KD2BMX</b>
<b>Education</b>	<b>Gordon Beattie</b>	<b>W2TTT</b>
<b>Education</b>	<b>Randy Smith</b>	<b>WU2S</b>
<b>Education</b>	<b>John L. Howard</b>	<b>KD2NRS</b>
<b>Education</b>	<b>Fred Wawra</b>	<b>W2ABE</b>
<b>History</b>	<b>Gene Ottenheimer</b>	<b>WO2W</b>
<b>History</b>	<b>Lowell Vant Slot</b>	<b>W2DLT</b>
<b>History</b>	<b>Rosalyn Roimisher</b>	<b>KD2GKA</b>
<b>Photographer</b>	<b>Don Cassarini</b>	<b>N2PRT</b>
<b>W2NPT Trustee</b>	<b>Paul Cornett</b>	<b>W2IP</b>
<b>Technical</b>	<b>Paul Cornett</b>	<b>W2IP</b>
<b>Technical</b>	<b>Randy Smith</b>	<b>NU2S</b>
<b>RACES Liaison</b>	<b>Steve Wraga</b>	<b>WA2BYX</b>
<b>Newsletter Editor</b>	<b>Ed Efchak</b>	<b>WX2R</b>

## SPECIAL MESSAGE FROM THE PRESIDENT

To the Members of the  
Fair Lawn Amateur Radio Club,

During the October business meeting I mentioned about a team of 2 or 3 members that might be interested in volunteering to be the 'chair persons' to coordinate the food service for our auction, Friday November 24th and the holiday dinner, Friday December 3rd. As you know both events are extremely close in time.

There is a lot involved in this and I am looking for someone that is willing to "learn the ropes" of what is needed to put this together. Gene Ottenheimer (WO2W) has for many years performed this function. He can guide you in what needs to be bought, recommend where to buy the food and supply and how to set up it up. I also can be of assistance.

PLEASE RESPOND DIRECTLY TO ME AND NOT THE FULL MEMBER LISTING. My direct email address is: [kc2ltmjas@optimum.net](mailto:kc2ltmjas@optimum.net).

Thank you for your attention in this matter.

### FLARC 2018 Candidates For Officers and Trustees

(as proposed by Nominating Committee)

<b>President</b>	<b>- Brad Kerber /KD2GNY</b>
<b>Vice President</b>	<b>- Lowell Vant Slot / W2DLT</b>
<b>Secretary</b>	<b>- Randy Smith /WU2S</b>
<b>Treasurer</b>	<b>- Al Rasmussen/WA2OWL</b>
<b>Trustee ( 3 yr.)</b>	<b>- Skip Barker/KD2BRV</b>
<b>Trustee ( 1 yr.)</b>	<b>- Don Cassarini/N2PRT</b>

Election of officers will occur at the December Annual Meeting on December 1, 2017 at the Senior Center.



## Fall Street Fair

Good weather, a large crowd and a great FLARC turnout made for a successful October 15th event. Morse, SDR and our repeater made up the demonstration.

Brad, KD2GNY, brought the small remote control panel for his Flex SDR radio and was able to make contacts on HF by controlling his home station from the Fair booth.

We also had a new member join us as a result -- welcome Erick Rivera to the club! Thanks to all who participated:

WA2ALY, KC2LTM, W2ABE, KD2MOB, KD2BRV, WX2R, KC2RSS, WU2S, W3EH, KD2GNY and W2JC. Also tnx to W2DLT for the Echolink contacts from PA. KD2MOB and KD2NRS for local contacts.



Larry (WA2ALY) works his Morse magic with a fair visitor.



Fred (W2ABE) and Judith (KC2LTM) flank new member Erick Rivera.

## The Monday Night *Near and Far* Net

Who did I miss?? Let Ed (WX2R) know and we'll add you to our N&F roster and Hall of Fame.

**The net runs every Monday at 2000 Eastern Time** on the repeater. Everyone is welcome.

EchoLink friendly! Thanks for checking in!

KD2MOB  
WO2W  
WX2R  
W2JC  
W2DLT  
K2RJF  
WA2BYX  
K2TRW/BM2NHC  
KC2TBD  
KC2ZX  
KD2BRV  
KD2KLN  
N1STU  
N2ST  
NQ2T  
W2IP  
W2KBF  
W2NZ  
W6SKT  
WA2OWL  
WI2W  
WU2S  
N2HIP  
KD2BKD  
KA2YRA  
KD2NOG  
KC2ZX  
W2TAB  
NK2Q  
N2VHZ  
W2TU  
K2BIX  
W2AAB  
KD2NZW  
KD2OAZ  
KD2OBY  
N2OEL  
KB2ESE  
KD2NRS and ???



## Save The Date!! The FLARC Auction Is Friday, November 24th!!

The club's fundraiser of the year is the day following Thanksgiving. With visitors coming from as far away as Virginia and New Hampshire, we need lots of help to make it successful.

We'll need volunteers for the evening in a variety of roles but also the following specific activities:

- people to go shopping
- someone to make the sausage and peppers.
- someone in charge of set up and take down

See Judith (KC2LTM) directly for all the details.



Part of the crowd from the FLARC 2016 Auction

### Photos From Around The Club



L to R: Thom (W2NZ), Steve (WA2BYX), Brian (KD2KLN) and Zach (KC2RSS) at the Senior Center.



Nomar (NP4H) and Randy (WU2S) also at the Senior Center.

### Club Apparel Is Here!!

Isn't it getting close to the holidays? New FLARC gear on your list? There's always time to make a positive club impression. And they're easy to order.



Randy (WU2S) shows off his spiffy new FLARC hat!

Go to [www.hamthreads.com](http://www.hamthreads.com)

**Check out the item selection that is posted on the FLARC website (with pictures and prices).** Order the shirts or other items you want with either the regular FLARC or 60th anniversary logo.

Note: **RED** is the primary and preferred club brand standard shirt color.

## Tech Talk

### Hacking Your BitX40 Transceiver

In August I introduced you to a versatile, inexpensive HF SSB transceiver called the BitX40. This is such a useful project that I think many will see it as an opportunity to learn more about electronics, principles of radio, construction and operating. There are many sources to guide you in getting the most from your BitX40.

A great starting point is the podcase from Ham Radio 360 Workbench hosted by Jeremy KF7IJZ and George KJ6VU <sup>1</sup>. In this episode they interview Mark KR6ZY, who is an avid hacker and mentor to the BitX40 community. Mark reported on a wide range of projects that the BitX community is using and improving.

One of the hardware improvements most hams need is a case for the radio circuit board and a place to mount the knobs and jacks. Several ideas are mentioned. One is a plastic instrument case from Banggood.com for under \$800 <sup>2</sup> (Figure 1). An alternative case for the frugal ham is a modified aluminum cake pan (Figure 2).

The BitX40 Hacks blog contains a wealth of material aimed at making this transceiver more versatile <sup>3</sup>. One article by Don ND6T explains how you can turn your BitX40 Raduino into a CW transceiver <sup>4</sup>. Don explains the theory behind the simple circuit modification and he will send you the Raduino program, call a Sketch, to complete the transformation. Be sure to also read Don's update on this mod <sup>5</sup>.

If you like playing around with software or are interested in learning about how software can control a radio, the BitX40 is the platform for you. One of the community's most prolific software authors, Allard PE1NWL, shares his software and excellent instructions with all hams <sup>6</sup>. Among other things, the programs from Allard enable you to change the transceiver's function buttons to enable changing the VFO parameters, set the tuning range, set CW parameters and set frequency scan parameters. See Figure 3 for an example of his circuits. Other software upgrades are found on Amunter's repository <sup>7</sup>.

Hack away, my friends, and learn something new and useful.

DE Randy (WU2S)

#### References

1. Ham Radio 360 Workbench Episode 33 – Hacking the BitX40: <http://hamradio360.com/index.php/2017/09/26/2448/>
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3. BitX40 Hacks blog - <http://bitxhacks.blogspot.com/>
4. Putting the BitX40 Raduino on CW- <http://bitxhacks.blogspot.com/2017/02/putting-bitx-raduino-on-cw.html>
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6. Allard's Raduino Code - <https://groups.io/g/BITX20/wiki/Allard%27s-Raduino-Code>
7. Software Upgrades Raduino Sketch - <https://github.com/amunters/bitx40/>



Figure 1 - Excellway EF01 Plastic Case



Figure 2 - KC8WBK cake pan enclosure

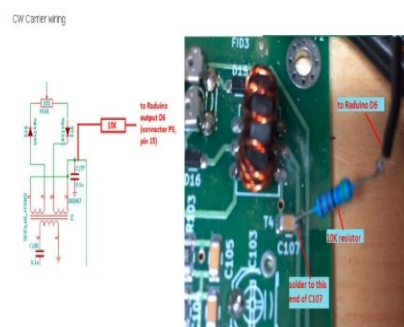


Figure 3 – Allard CW carrier wiring example



## A New NNJ Club At William Paterson University

Below you'll note the call sign of the new club station at the college (KD2OMP), accomplished in large part by the hard work of FLARC member and WPU student Matt (KD2MLR). A large congrats and much success to the Pioneer Amateur Radio Club.... we've offered to help them in whatever way necessary to get them off the ground. Great job Matt!!



The license for KD2OMP at WPU

**When you join a club it's not just  
about *going*... t's about *doing*.**

**Get involved in the many activities  
of FLARC or suggest a new one  
yourself.**

## What I Do In My Spare Time...

This was my project of the week ...

Below on the left you can see the flimsy rod used to hold up the antenna.

On the right you can see an inch and a half steel tube driven in the ground and the dark green mast sections attached to it ...

Remove the lower bolt and the mast pivots down to the ground for adjustments, etc.

All the stainless steel hardware and special long drill bit arrived one day after placing the order !!

Such is today's world of instant gratification. :)

de Jim (W2JC)



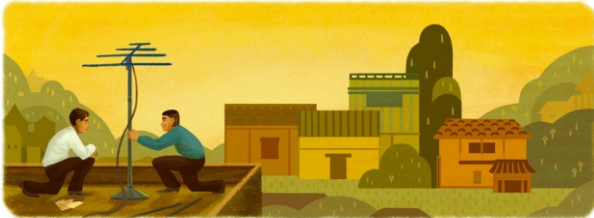
Backyard construction at W2JC



## MASTER EVENT CALENDAR

November 17	Jonathan Taylor (K1RFD) "Developments In VOIP And Related Technologies" (Senior Center)
November 24	FLARC Auction (Senior Center)
December 1	FLARC ANNUAL MEETING, Election and Dinner (Senior Center)
December 15	Mike Lisenco (N2YBB) ARRL Hudson Division President (Senior Center)
<b>Upcoming Activities</b>	
January 19, 2018	Pete Malvasi (W2PM) "Early Telegraph Key--A History" (Tentative)
February 16, 2018	Ed Efchak (WX2R) "The 2018 FLARC Member Survey Results"
March 16, 2018	Nathaniel Frissell (W2NAF) "What Did We Learn From The Solar Eclipse?"
April 13, 2018	Great Falls Earth Day Special Event Station (TBD)
June 23-24, 2018	Field Day 2018
TBA	FT8 For Dummies
TBA	W1TP Enigma Presentation w/Fair Lawn Public Library
TBA	EMCOMM and its local impact

## FLARC VEC Exams



Hidetsugu Yagi's 130th Birthday Google Doodle

Our next test session is scheduled for **Saturday, November 11th** beginning at 09:00 at the Community Center. No advanced registration is required but always appreciated. The fee is \$15.00 (cash or check).

Please bring positive identification (license, passport, etc.), your original license and a copy, original CSCE and a copy (if credit is needed).

The full exam schedule is on the club calendar at the FairLawnARC.org website. For further information contact [VE-Liason@FairLawnARC.org](mailto:VE-Liason@FairLawnARC.org).

Please refer also to the "License Exams" link on the main website--

<http://testing.FairLawnARC.org>

## Follow FLARC ON THE WEB

**Facebook:** <http://facebook.FairLawnARC.org>

**Twitter:** @FairLawnARC

**Blog:** <http://blog.FairLawnARC.org>

**Youtube:** <http://youtube.FairLawnARC.org>

**Website:** <http://FairLawnARC.org>

***Also don't forget that it's never too early to pay your 2018 dues!!***

**We appreciate your support of the Fair Lawn Amateur Radio Club!  
This is your Club! Be part of it!**



## Ria Jairam (N2RJ) Talks SDR To FLARC

Thanks to Ria Jairam, N2RJ for an amazing presentation to a crowd of fifty on October 20th about Software Defined Radios (SDRs), YLs in Ham Radio, and setting up a "World Class" ham station. Ria discussed the latest technology and offerings from Flex Radio, the "HPSDR project" with Anan radios, RTL SDR radios, and other models that are currently available. She also shared practical tips for contesting, DXing and rag chewing using your SDR. This is yet another reason why ham radio is such a great hobby! There is ALWAYS something new to learn. Thank you Ria!



Ria leading the discussion on SDR.



Part of the crowd at intermission.



Brad (WB2GNY) and Jim (W2JC) look over the gear.



Dave (WO2X) checks out both the rig and his phone.



Ria acknowledges the club's gift at the conclusion of the show.



An up-close look at the Flex Maestro.

## October 2017 Meeting Notes

*These are the October minutes. The meeting was rescheduled to October 13th -- missing the deadline for The Resonator.*

President Judith KC2LTM called the meeting to order at 7:33p.m.

The members rose and recited the Pledge of Allegiance.

President Judith KC2LTM asked if there were any visitors or new members present, or if any members had upgraded their licenses. There were none.

President Judith KC2LTM requested Secretary Randy WU2S to determine if a quorum was present to conduct club business. Randy called the roll of officers and trustees finding that Treasurer Nancy N2FWI, Trustee Steve WA2BYX and Trustee Dave NK2Q were absent. The remaining three officers and Trustee Jim W2JC constituted a quorum for the business meeting.

Secretary Randy WU2S announced that the minutes from the September meeting were emailed to all members and that they had also been published in the latest edition of the club's newsletter, The Resonator, which can be found on the club's website at [www.FairLawnARC.org](http://www.FairLawnARC.org). He asked the members present if there were any corrections or amendments needed. There were none so Ed WX2R moved to accept the minutes as published and Skip KD2BRV seconded the motion. The motion passed by acclamation.

President Judith KC2LTM said that she had not received a treasurer's report. She noted that annual dues collection for 2018 would begin in November.

President Judith KC2LTM asked if the members present remembered long-time FLARC member Don White KB2OCW who passed away not long ago. She mentioned that Don's widow, Gert, a nurse at St. Joseph's hospital just left us last week.

## October 2017 Meeting Notes (2)

President Judith KC2LTM announced that since the proposed IM Suppression Panel for the repeater was not a returnable item, the club would not be purchasing it. She had advice from Paul W2IP about the proposal which indicated that it would not likely improve the W2NPT repeater's operations. She said that the donated antenna next to operating position #1 was thoroughly inspected by several knowledgeable members and found to be of no use to the club. Several of the antenna parts may be saved for other uses.

Secretary Randy WU2S reported for the Technical Committee. He reported that Paul W2IP is fabricating a permanent replacement for the tri-band antenna feed point and that it will be installed when we have the time and a suitable weather window. The temporary feed point fix has been working well during the recent contests.

Secretary Randy WU2S reported that he worked all day on Monday at the ARRL headquarters in Newington CT. He educated Ed Hare, W1RFI, the ARRL Lab Manager on AREDN mesh networking. He and Ed covered a lot of ground, including setting up four mesh nodes and demonstrating the operation of a video camera. Ed presented Randy with a copy of the 2018 ARRL Handbook and two books on the history of QST. Randy gave the books to President Judith KC2LTM for the FLARC library. At dinner on Monday with Ed and ARRL CEO Tom Gallagher NY2RF, Randy heard from Tom that he remembers the talk he gave to FLARC last December and that the sheet cake with the ARRL diamond that he brought for that event has become a standard procedure for the ARRL in commemorating club milestones. So, FLARC is in one way a trendsetter for helping establish an ARRL standard!

Continued on page 15.



## October 2017 Meeting Notes (3)

Randy noted that Tom said the response to providing amateur radio assistance for the Puerto Rico relief effort was overwhelming. In less than 36 hours following a request from the Red Cross, the ARRL gathered 50 people from a group of over 450 volunteers and assembled 25 radio go-kits from scratch. Generous hams donated over \$120,000 in cash and merchandise for the effort. Hams are deployed throughout the island, mostly at hospitals and fire stations. One team of hams is at the Guajataca Dam providing communications support for the engineers dealing with the potential collapse of the structure. Randy said that much more information about hams in Puerto Rico is available on the ARRL website at <http://www.arrl.org/puerto-rico-caribbean-recovery-2017#Information>

Ed WX2R reported for the Publicity Committee. He noted that the Fair Lawn Street Fair is on River Road this coming Sunday. On November 17 guest speaker Jonathan Taylor K1RFD, the inventor of Echolink, will tell us about voice-over-IP (VoIP) telephony for amateur radio. On December 15, our ARRL Hudson Division Director Mike Lisenco N2YBB will talk to us about League activities.

Van W2DLT said that on Friday, October 20 guest speaker Ria Jairam N2RJ will tell us about software-defined radios (SDR) and contesting. This event will be at the Fair Lawn Senior Center starting at 7:00 pm.

Ed WX2R noted that planning for our 2018 speakers has begun. We will try to have Dr. Nathaniel Frissell W2NAF return to tell us about what he learned about radio propagation during the recent solar eclipse. We are also trying to get a speaker to talk about emergency communications issues in March.

Ed WX2R said that we will hold another special event with the National Park at Paterson Great Falls in April. He called attention to excellent videos made by Thom W2NZ to capture the presentations by our guest speakers. The videos are available via the FLARC website and on YouTube. The members present loudly applauded Thom's efforts.

## October 2017 Meeting Notes (4)

Vice President Fred W2ABE reported for the Education Committee. He said that his column in the Resonator, Theoretics Demystified, should help address confusion about many common terms and radio concepts.

President Judith KC2LTM asked if there was any old business. Ed WX2R said that the Monday night net was going strong and that he is maintaining the signup sheet for net controllers.

President Judith KC2LTM began to address new business. She announced that the annual Nominating Committee, consisting of Trustees Jim W2JC and Dave NK2Q are looking for candidates for next year's officers and open trustee positions. Dave NK2Q will not be able to fill the rest of his term as a trustee due to work obligations, so we will elect two trustees at our December meeting. The Nominating Committee will announce its slate of candidates at the November business meeting. At that time, nominations from the members present will also be accepted.

President Judith KC2LTM announced that we need a chairperson to take charge of ordering and organizing the food for our annual auction, on Friday, November 24, at the Fair Lawn Senior Center. She has a list from Gene WO2W of what was ordered in the past. Please contact Judith immediately if you can lead this effort.

President Judith KC2LTM announced that we also need a chairperson to take charge of ordering and organizing the food for our annual Holiday Dinner on Friday, December 1 at the Fair Lawn Senior Center. Please contact Judith immediately if you can lead this effort.

Fred W2AAB asked if the club has a committee to assist members with antenna construction. Secretary Randy WU2S replied that since antenna construction is a large subject and that construction is a relatively infrequent event, a committee would not be all that useful. He said that just asking the club members as needed would produce a lot of help. Larry W2ALY said that he got a lot of help through discussions with FLARC and BARA members over five months before installing his new 160-meter inverted L antenna.

Continued on page 16.



## October 2017 Meeting Notes (5)

President Judith KC2LTM asked Steve WI2W about the status of the antenna kits. Steve replied that he is working on designing a higher-powered version of the kit with a larger toroid.

Van W2DLT announced that the CQ Worldwide SSB contest will be in two weeks starting at 7:00 pm on Friday, October 27. He, Jim W2JC and Ed WX2R will operate station K2AX in Hammonton, NJ. He asks all FLARC members to try to work them during the contest.

Having no further business, President Judith KC2LTM asked for a motion to adjourn. Brian KD2KLN so moved and Zach KD2RSS seconded the motion. The members present voted in favor and the meeting was adjourned at 8:15p.m.

Respectfully submitted,

Randy WU2S, Secretary

## Save The Date: December 1st FLARC Annual Meeting and Holiday Party

Pursuant to the bylaws (below), the annual meeting of The Club will be held on this date with the election of officers for 2018 ensuing.

### Section 10.1 Date of Annual Meeting

*The annual meeting of the Association for the election of members of the Council and the transaction of the general business of the Association, shall be held at six o'clock PM (6:00 PM) on the first Friday in December in each year unless that day is a legal holiday in which event the following Friday shall be designated or another time thereafter as soon as practical.*



## FLARC and FRC AT K2AX Superstation For CQWW SSB

Many thanks to K2AX for hosting the group from the FLARC at his first rate QTH and all the hospitality from him and his family. Thanks also to Franklin Radio Club members Dave, K3FT, and Mark AA3K for doing all the coordination and scheduling up front and to Joe, KC2TN for doing some site engineering with Mark to get things tuned up and working well before the start. Thanks also to all of the other FLARC guest ops (W2DLT, W2JC, NP4H, KD2NRS, WX2R) for a great effort and all the support. Again, thanks to K2AX AA3K K3FT NY3B KC2TN AK2S and KE2D.



L to R: AA3K, K3FT, W2JC, WX2R, NP4H, W2DLT, KD2NRS, AND KE2D with two of K2AX's four towers in the background.

## Have Time On Your Hands? Go Gab On A Net!

Brian (KD2KLN) is producing an up-to-date list of local area nets. Here is the latest update, much more information than previous versions as lots of new nets have been discovered .

All listed nets have been verified as to existence and activity (and I try to check into as many as possible).

As usual, if you know of something I missed, let me know and I'll add it, and of course, please pass this on to anyone that you think can use this info.

Here is the link (and we'll keep the latest on the blog):

<https://wordpress.com/post/flreswp.wordpress.com/2239>



## Theoretics Demystified

New and old! The old is the analog receiver and the new is the Software Defined Radio. The old is analog (NOT digital) and uses heterodyning which is taking the input signal and mixing it with a 'local' oscillator or signal producing circuit to end up with a lower frequency signal which is amplified and shaped and detected by the radio. Heterodyning produces sum and difference new signals and usually the higher one is filtered out and not used. The original use of heterodyning was invented and developed by Armstrong and was (and is) called Super Heterodyning. That was the old tried and true way of handling incoming signals.

The new ways of doing it with an 'SDR' is to take the incoming signal and digitize it right at the antenna! Not as much fun if you like to 'get at the insides' but the possibilities are only limited by the software. The downside is that you cannot do much if the set fails, but that is the same as your home PC as it and the SDR are really both computers.

73,  
DE Fred, W2ABE.

## Veep Beeps

Welcome to ALL of the new club members!

Welcome to the ever evolving, exciting world of ham radio! There is never a boring Friday night at the club or during many of our yearly and social activities.

I encourage you to become active in one or several of the special events that go on during the year. There is a myriad of different activities to choose from and to be part of.

73,  
Fred W2ABE

Advertisement

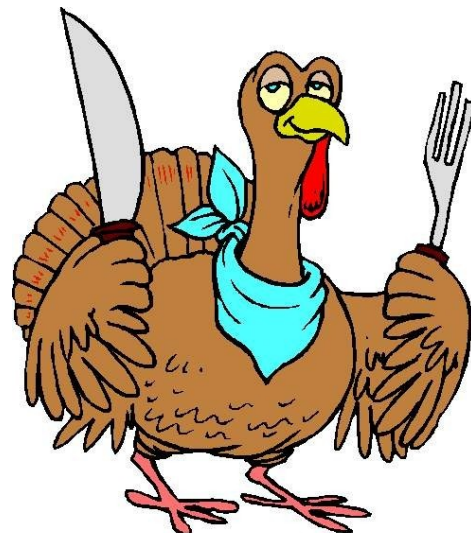
## FLARC Badges and Travel Mugs

Perfect for NPOTA, FD and Portable Day  
Standard or 60th Anniversary Logo

Badge \$15 Stainless Steel 15 oz. Mug \$25



See Randy WU2S to order or  
Email [randy@wu2s.com](mailto:randy@wu2s.com)



**Turkey on Thursday ...**

**(Ham) Auction on Friday ! (Nov. 24th)**

## Congratulations!!

Here are the results of the October 21st  
VE test session held at the club:

Total Number of Candidates Served: 7  
Total Number of New License Class Earned: 6  
Total Number of Candidates Who Did Not  
Receive Upgrade or License: 1

NAME	CALL SIGN	License Earned
Petrica Baci	KD2OCV	Extra
Kenneth Clink	KD2OKR	Tech
Nancy Mahl	KD2OKS	Tech
Steven Demers	KD2OIN	General
Dwight Kizun	KC3KCC ?	Tech
Faustino Lucero	W2LUC	General

Congratulations to all!!

DE PETE (KD2BMX)

## More Fall Street Fair



Fair Lawn Community TV visits Larry and his Morse guest.



Brad (KD2GNY) shows off his Flex Radio with Dave (KD2MOB) alongside Larry (WA2ALY).

## 2017 FLARC Speaker Series

### Locations:

#### *SPEAKERS WHO ARE FLARC MEMBERS:*

**FLARC CLUBHOUSE**

#### *SPEAKERS WHO ARE INVITED GUESTS:*

**FAIR LAWN SENIOR CENTER**

## Save The Date: November 24th The FLARC Auction

The annual FLARC auction is the best event of the Fall/Winter season and a great fundraiser for the club. Please hold the date and volunteer to help with the many things there are to do to accommodate eager buyers, determined sellers and very hungry hams.

It's at the Senior Center... save the date; help the club!

### CQ HQ

We are looking to put together a trip to ARRL headquarters in Newington CT, get a tour and operate W1AW. If you're interested, contact Ed (WX2R) and we can start to plan a date... weekdays only.

Update: So far we have a party of three...let Ed know your interest.

## October 2017 Blog Traffic

*October traffic was the second highest month of the year in visitors and the sixth straight month of 600+ page views. .. thanks to all! Gotta get back to work on those posts... Here is the data:*

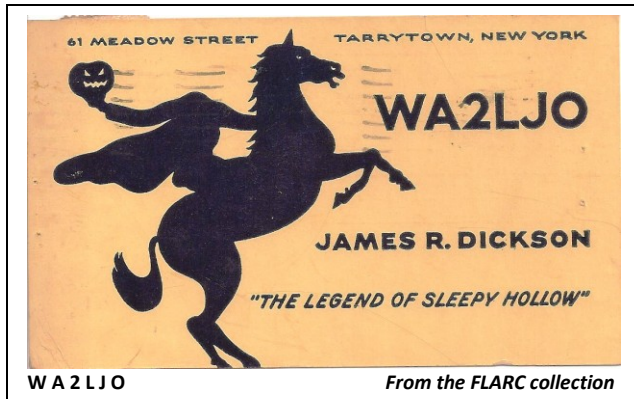
	October 2017	October 2016	Change
Views	665	512	30%
Visitors	363	163	+123%
Posts	7	17	-59%

And we continue to grow!! There is new content nearly every day so it's really worth the look to both FairLawnARC.org and the blog.

<http://blog.FairLawnARC.org>

## A Look Back

A 1961 2m QSO between **WA2LJO** and **W2MFF** in East Paterson. **LJO** was using a Viking 6N2 Xmtr and an 8 element antenna.



### BEQUEATHS AND DONATIONS

Planned gifts usually imply the family donation of amateur equipment to the club when someone has become a Silent Key. But it can be more. Club members might consider making a gift through a will or trust; gifts that help provide lifetime income to the club. Consult with your lawyer, estate planner or tax advisor if you feel such a gift is worthy.

## About The Club

*The Resonator* is published monthly and is the official (and only) newsletter of The Fair Lawn Amateur Radio Club. FLARC was established in 1956 and has met continuously since inception.

The club meets every Friday at 7PM at the club station in The Fair Lawn Community Center, 10-10 20th Street, Fair Lawn, NJ. Business meetings are the first Friday of the month at 7:30 PM.

**Visitors are always welcome at our meetings.**

FLARC operates the W2NPT repeater (145.470- PL 167.9) located atop the Community Center. The analog repeater is open to all amateurs for use without restrictions.

The club has approximately 120 members.  
Dues are currently \$25 per year/\$20 for new members.

For more information, please see our website, at

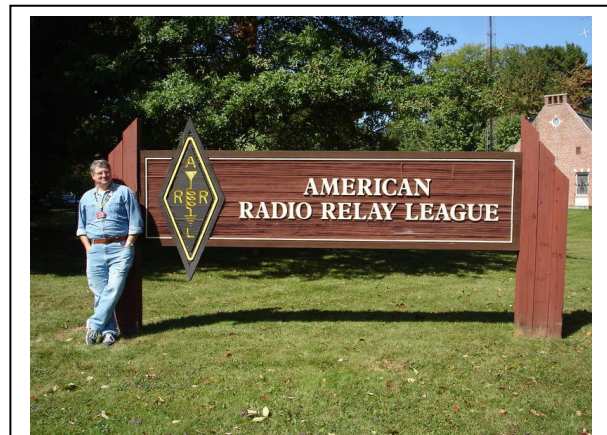
<http://membership.FairLawnARC.org>

## Save The Date: December 15th Mike Lisenco (N2YBB) and the State of The ARRL

To close out our 2017 Speaker series, we turn to the head of the ARRL Hudson Division to give us an update on the state of ham radio and the League and items affecting northern New Jersey.

Our speaker is Mike Lisenco (N2YBB) who we welcome back to FLARC. Mike is an accomplished operator with numerous awards and accomplishments in the hobby.

Mike's presentation will be at The Senior Center, beginning at 7PM.



Mike Lisenco (N2YBB) at ARRL Headquarters



## FAIR LAWN'S TECHNOLOGY HOUSE!





## Past FLARC Member Profiles

Here is a list of past member features and we welcome your recommendations for new profiles -- including your own.

Month	Name	Call Sign
January 2016	Pete	KB2BMX
February	Marco	KC2ZMA
March	Ron	KC2TBD
April	Kai	K2TRW
May	Larry	WA2ALY
June	Dave	N8MAR
July	Steve	WI2W
August	Thom	N2DI
September	Brian	KD2KLN
October	Brad	KD2GNY
November	Al	WA2OWL
December	George	W3EH
January 2017	Fred	W2ABE
February	Dave	KD2MOB
March	Randy	WU2S
April	Lee	KD2DRS
May	Gene	WO2W
June	Carol	KD2NMV
July	Kevin	KC2KCC
August	Robert	KD2NOG
September	Robert	KD2BKD
October	John	KD2NRS
November	Fred	W2AAB

By the way, Randy (WU2S) has compiled a binder of all back issues of *The Resonator* and it's located in the club office. Thanks Randy!!! Back issues are also available on our website.

<http://newsletters.FairLawnARC.org>

## Club Condolences

**The club extends its deepest condolences to past President John Labosky (KC2OCD) on the death of his XYL, Frances Lynne Labosky, on October 20th.**

## Save The Date! November 17, 2017

**Jonathan Taylor (K1RFD)**

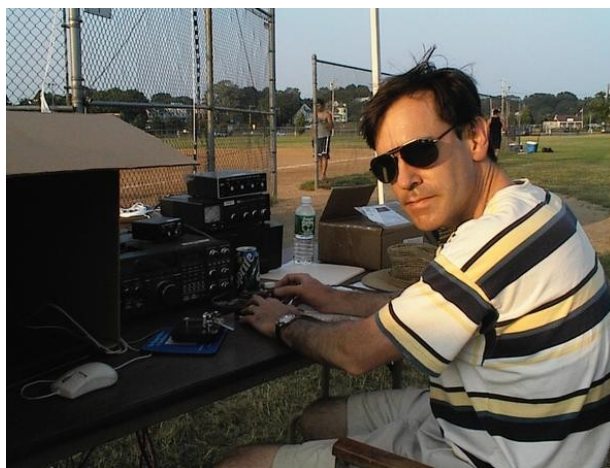
**"Developments In VOIP and Related Technologies"**

The club is honored to have a member of the CQ Hall of Fame, inventor of EchoLink and a co-inventor of "Apparatus, system, and method for maintaining a persistent data state on a communications network," U.S. Patent #7,188,176.

Jonathan is author of the ARRL book "VoIP: Internet Linking for Radio Amateurs." He received the 2002 ARRL Technical Innovation Award. He is also the recipient of the 2003 Hamvention Special Achievement Award in Dayton.

Named to CQ Magazine Amateur Radio Hall of Fame (2005), Jonathan is the ARRL Technical Advisor for the New England Division.

"Mr. Echolink" is also a private pilot and may be the first FLARC speaker to fly to his presentation from his Connecticut home QTH.



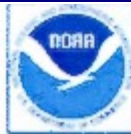
Jonathan Taylor K1RFD

## Don't Forget Club Apparel !!

Being spiffy in FLARC gear is always in fashion. Check out Randy's (WU2S) new FLARC baseball cap as an example. Find the catalog and the order form at:

[http://flarc.net/FLARC\\_Clubware\\_descriptions\\_160226.pdf](http://flarc.net/FLARC_Clubware_descriptions_160226.pdf) or <http://bit.ly/2yOrhP3>





# HURRICANES

Nature's Greatest Storms

## CONVERTING ZULU TIME TO LOCAL TIME

NOAA satellites use Zulu Time or Coordinated Universal Time (UTC) as their time reference. The satellite images that appear on NOAA's Web sites are stamped in Zulu time.

To make the conversion to your local time, see the chart below. Find your local time in the first column. If you are on Eastern Daylight Saving Time (EDT), you would use the second column to find your Zulu Time/UTC. For instance, if it's 11 a.m. Eastern Daylight Saving Time in Washington, D.C., it's 1500 hours in Zulu time/UTC. See legend below. ([Back to Hurricanes Page.](#))

LOCAL	EDT	EST	CDT	CST	MDT	MST	PDT	PST
Midnight	0400	0500	0500	0600	0600	0700	0700	0800
1 a.m.	0500	0600	0600	0700	0700	0800	0800	0900
2 a.m.	0600	0700	0700	0800	0800	0900	0900	1000
3 a.m.	0700	0800	0800	0900	0900	1000	1000	1100
4 a.m.	0800	0900	0900	1000	1000	1100	1100	1200
5 a.m.	0900	1000	1000	1100	1100	1200	1200	1300
6 a.m.	1000	1100	1100	1200	1200	1300	1300	1400
7 a.m.	1100	1200	1200	1300	1300	1400	1400	1500
8 a.m.	1200	1300	1300	1400	1400	1500	1500	1600
9 a.m.	1300	1400	1400	1500	1500	1600	1600	1700
10 a.m.	1400	1500	1500	1600	1600	1700	1700	1800
11 a.m.	1500	1600	1600	1700	1700	1800	1800	1900
NOON	1600	1700	1700	1800	1800	1900	1900	2000
1 p.m.	1700	1800	1800	1900	1900	2000	2000	2100
2 p.m.	1800	1900	1900	2000	2000	2100	2100	2200
3 p.m.	1900	2000	2000	2100	2100	2200	2200	2300
4 p.m.	2000	2100	2100	2200	2200	2300	2300	2400
5 p.m.	2100	2200	2200	2300	2300	2400	2400	0100
6 p.m.	2200	2300	2300	2400	2400	0100	0100	0200
7 p.m.	2300	2400	2400	0100	0100	0200	0200	0300
8 p.m.	2400	0100	0100	0200	0200	0300	0300	0400
9 p.m.	0100	0200	0200	0300	0300	0400	0400	0500
10 p.m.	0200	0300	0300	0400	0400	0500	0500	0600
11 p.m.	0300	0400	0400	0500	0500	0600	0600	0700
LOCAL	EDT	EST	CDT	CST	MDT	MST	PDT	PST

### LEGEND:

EDT = Eastern Daylight Saving Time  
 EST = Eastern Standard Time  
 CDT = Central Daylight Saving Time  
 CST = Central Standard Time  
 MDT = Mountain Daylight Saving Time  
 MST = Mountain Standard Time  
 PDT = Pacific Daylight Saving Time  
 PST = Pacific Standard Time

TNX to Paul (W2IP) for this!